

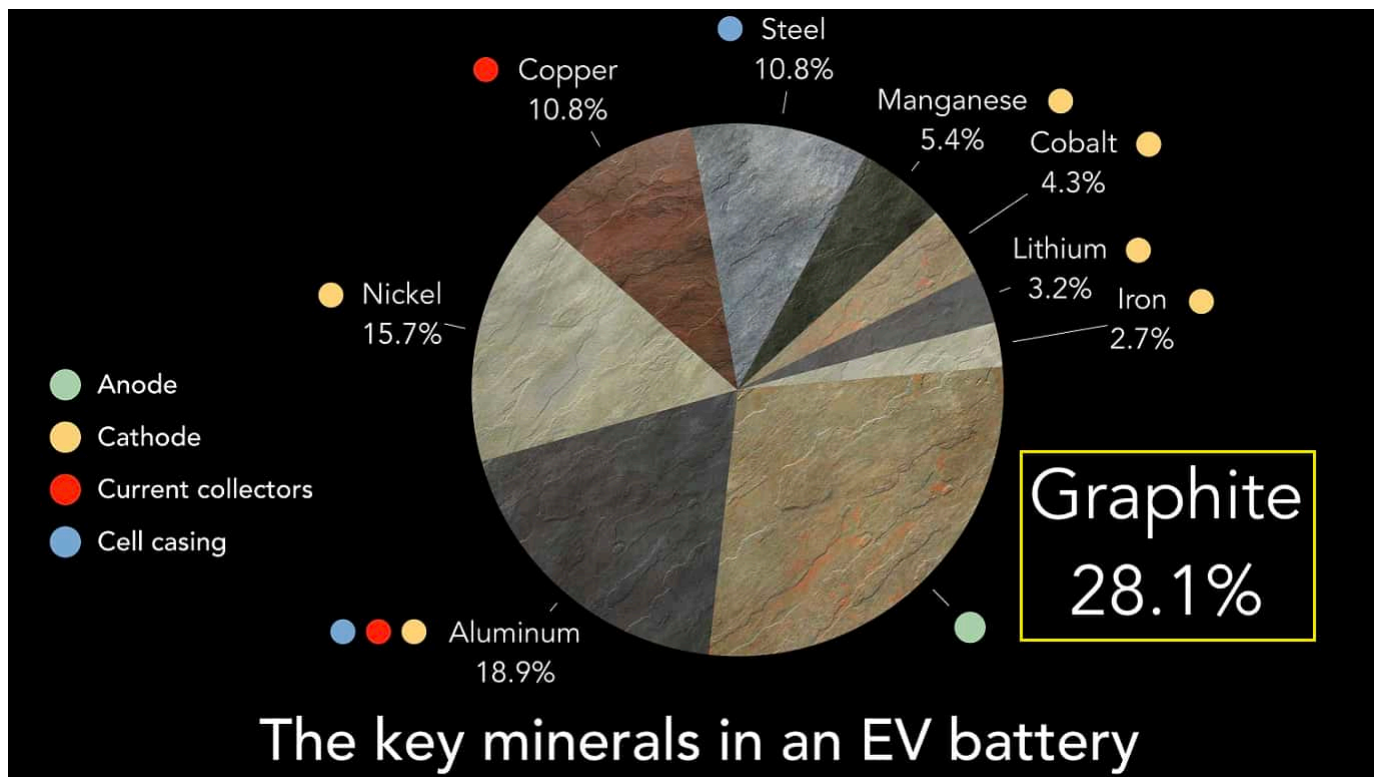
# Can the Western graphite and anode industry rise to meet China's challenge?

written by Matt Bohlsen | October 25, 2023

## China to impose some graphite and processed graphite materials 'export permits' from December 1, 2023

Last week it was [reported](#) that China, the world's top graphite producer plans to curb exports of key battery material by implementing export permits for some graphite products from December 1 to protect national security. Another report [stated](#): "China graphite export restrictions could hinder ex-China anode development...if it lasts into the longer term, it is likely to accelerate the build-out of a localized graphite and battery anode supply chain outside China."

Graphite is the number one metal required for lithium-ion batteries making up about a 28% share. It is used in the anode.



The key metals and minerals in a battery of an electric vehicle

## The world is very dependent upon China to supply processed graphite material and anodes for Li-ion batteries

The reason why this is huge news in the graphite world is that China produces [67% of global natural flake graphite](#) supply and refines more than [90%](#) of the world's graphite into active anode material (typically spherical graphite). If China were to deny or delay permits for spherical graphite it will cause major problems for anode manufacturers outside China, such as those in South Korea, Japan, or North America.

China currently produces [~77% of global lithium-ion batteries](#) and 75-80% of global electric cars, thereby completely dominating the industry. If the West is shut out from sourcing

processed EV battery materials from China then they will have a major problem producing their own EVs. China plans to prioritize EV battery materials for their own needs. This is why President Biden introduced the Inflation Reduction Act (IRA) and the EU introduced the EU Critical Raw Materials Act. Both are designed to address the shortages in the EV supply chain and the forecast shortages of future supply of critical raw materials. The problem is the IRA has done little to address the supply of raw materials and the EU Critical Raw Materials Act is [woefully inadequate](#) and targets fall way short of what will be needed.

## Which western graphite companies can rise to meet the challenge to establish an ex-China graphite supply chain

The leading western graphite companies that are working to establish an ex-China supply chain for flake graphite, synthetic graphite, and spherical graphite include:

- [Syrah Resources Limited](#) (ASX: SYR) – Largest western flake graphite producer with their 350,000tpa flake graphite capacity Balama Mine in Mozambique. Currently constructing the Vidalia spherical graphite facility in Louisiana, USA with Stage 1 production plans to produce 11,250tpa of spherical graphite. Longer term they plan to expand to 45,000tpa in 2026 and then to >100,000tpa by 2030 with an Europe/Middle East facility. Syrah already has an off-take agreement with Tesla (NASDAQ: TSLA). Syrah's stock price has surged ~80% higher the past week following the release of the China export permits news.
- [Nouveau Monde Graphite Inc.](#) (NYSE: NMG | TSXV: NOU) – Is

rapidly progressing their plans for their Matawinie Graphite Mine and Bécancour Battery Anode Material Plant in Quebec, Canada. The company is [working with Panasonic](#) to qualify their graphite anode material. Panasonic supplies Tesla with batteries.

- [Northern Graphite Corporation](#) (TSXV: NGC | OTCQB: NGPHF) – Owns graphite producing and past producing mines in Quebec, Canada and Namibia. They also own the Bissett Creek graphite Project in Ontario, Canada. The Company [state](#) that they are “North America’s Only Significant Natural Graphite Producer”. The Company plans to develop one of the world’s largest battery anode materials facilities in Baie-Comeau Québec with [200,000tpa](#) of capacity.
- [NextSource Materials Inc.](#) (TSX: NEXT | OTCQB: NSRCF) – A new graphite producer from their Molo Graphite Mine in Madagascar with Phase 1 capacity of [17,000tpa](#) of flake graphite production and plans to expand to [150,000tpa](#). The Company’s short term plan is for [a Battery Anode Facility in Mauritius](#) and longer term for similar facilities in USA/Canada, UK, EU.
- [Magnis Energy Technologies Ltd.](#) (ASX: MNS | OTCQX: MNSEF) – Magnis aims to produce high performance anode materials utilising ultra-high purity natural flake graphite from their Nachu Graphite Project in Tanzania. Magnis’ partially owned U.S.-based subsidiary Imperium3 New York, Inc (“iM3NY”) operates a gigawatt scale lithium-ion battery manufacturing project in Endicott, New York.
- [Talga Group Ltd.](#) (ASX: TLG) – Own the integrated mine to anode Vittangi Graphite Project in Sweden. In September 2023 Talga broke ground on their [19,500tpa](#) anode facility, [stating](#) “the refinery is projected to be the first commercial anode production in Europe for electric vehicle Li-ion batteries”.

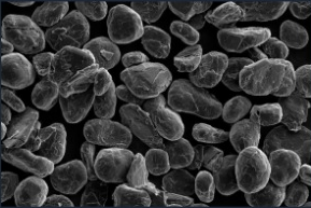
- [Novonix Limited](#) (NASDAQ: NVX | ASX: NVX) – Has a production capacity target of [up to 20,000 tpa](#) of synthetic graphite anode material from their Tennessee facility in the USA.
- [Anovion Technologies](#) (private) – The USA anode producer plans to invest US\$800 million to produce a [40,000tpa synthetic graphite anode material facility](#) in Georgia, USA with plans to expand to [150,000tpa](#) by 2030.

**Syrah Resources leads the West's attempt to build an ex-China flake graphite and anode material supply chain**

## Our Position



Syrah is a major ex-China natural graphite and active anode material (AAM) supplier for global customers, with upstream and downstream expansion potential underpinned by its world-class Balama resource

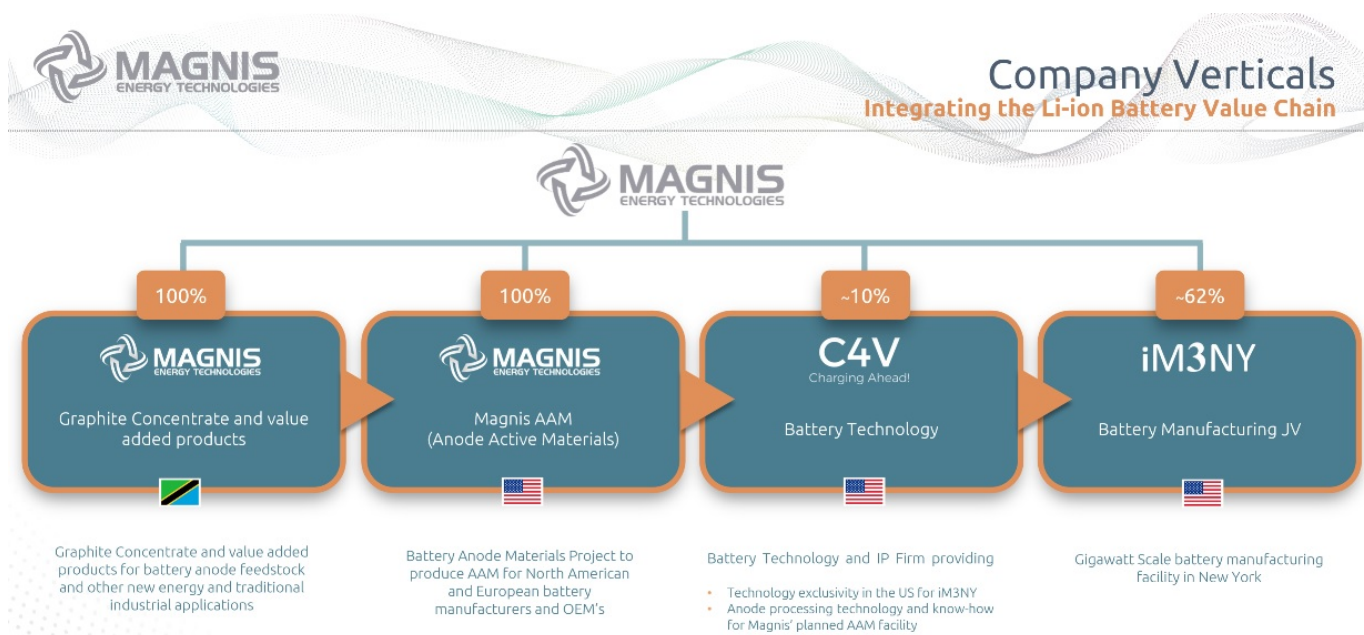
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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p style="margin-top: 10px;">Natural graphite and AAM demand will increase four and six times, respectively, over the next 10 years<sup>1</sup></p> |  <p style="margin-top: 10px;">Syrah is the only operating vertically integrated natural graphite AAM supplier outside of China</p> |  <p style="margin-top: 10px;">Balama is a 350ktpa graphite producer in Mozambique supplying global battery anode and industrial customers since 2017</p> |  <p style="margin-top: 10px;">Syrah is nearing completion of an 11.25ktpa AAM facility at Vidalia in the US with commercial sales arrangements in place with tier 1 customers</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

1. Source: Benchmark Minerals Intelligence Flake Graphite Forecast, Q3 2023. Note: AAM demand is for natural graphite AAM.

Source: [Syrah Resources September 2023 Quarterly Activities presentation](#)

**Magnis Energy Technologies is working towards becoming a graphite producer, anode materials producer and is already a small scale JV battery producer in the USA**





Source: [Magnis Energy Technologies company presentation](#)

## Closing remarks

The Western world received a loud wake-up call the past week. The China graphite products 'export permits' may only serve to restrict or slow down some anode material supply from China, but it puts the West on notice of how dependent they are upon China.

Given the world is rapidly moving to electric vehicles, the West must urgently build up its EV materials supply chains or risk being left behind in the global EV race.

The USA is making some bold moves and the companies discussed in this article are moving in the right direction. Let's just hope that the western EV supply chain build out accelerates rather than stalls like [GM's latest electric pickup truck plans](#). I think Americans will want U.S.-branded electric cars and I know Europeans will want European branded electric cars. If we are not careful our only choice one day might be Tesla and Chinese electric cars. Stay tuned.

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# Who are the graphite mining leaders as analysts forecast a tight graphite market in 2023 and beyond

written by Matt Bohlsen | October 25, 2023

Reports continue to emerge that the graphite market may be next to boom. This is due to accelerating strong demand from the EV battery sector and limited new supply in the pipeline.

The 2021 [International Energy Agency \(“IEA”\) report](#) highlighted that the world will need between **8 and 25x more flake graphite** from 2020 to 2040. This is supported by my recent Trend Investing [forecast](#) of a **17x increase in flake graphite demand** from 2020 to 2037.

In December 2022 Fastmarkets [stated](#): “An impending graphite shortage, driven by phenomenal demand growth from the EV battery sector and delays to new capacity...will all lead to significantly higher graphite prices in the coming years.”

**Trend Investing v IEA demand forecast for EV metals**

### Increase in metal demand 2020 to 2037 (100% EV and sustainable energy world)

|                       | Trend Investing (f) to 2037 | IEA (f) to 2040 |  |  |
|-----------------------|-----------------------------|-----------------|--|--|
| Lithium demand        | 35                          | 13 --42         |  |  |
| Cobalt demand         | 5.7                         | 6--21           |  |  |
| Nickel demand         | 2.8                         | 7--19           |  |  |
| Manganese demand      | 1.7                         | 3--8            |  |  |
| Flake Graphite demand | 17                          | 8--25           |  |  |
| NdPr demand           | 5.9                         | 3--7            |  |  |
| Copper demand         | 2.3                         | 2--3            |  |  |

Source: [Trend Investing](#) & [IEA](#)

### The graphite mining leaders

There are a number of leading Chinese graphite mining companies (Aoyu Graphite Group, BTR New Energy Materials, Qingdao Black Dragon, National de Grafite, Shanshan Technology, and LuiMao Graphite); however, they are not typically accessible to most western investors.

**Syrah Resources Limited (ASX: SYR | OTC: SYAAF)** is the leading western graphite producer. They source their graphite from their 100% owned and massive Balama graphite mine in Mozambique. Syrah is currently constructing their active anode materials (“AAM”) plant at their Vidalia facility in Louisiana, USA. The facility has initial plans for 11.25ktpa of AAM and then to expand to 45ktpa AAM. The first stage 11.25ktpa AAM is targeted to start production in the September quarter of 2023. Tesla (NASDAQ: TSLA) signed an off-take agreement for an initial 8ktpa of AAM which was recently expanded to an additional 17ktpa AAM of off-take (see [Dec. 23, 2022 news](#)).

**Other graphite producers** include Ceylon Graphite Corp. (TSXV: CYL | OTCQB: CYLYF) with production in Sri Lanka, **Mineral Commodities Ltd. (ASX: MRC)** who own 90% of Skaland Graphite which operates the highest grade flake graphite operation in the world and largest producing mine in Europe, **Tirupati Graphite**



**PLC's (LSE: TGR)** project in Madagascar, and **Northern Graphite Corporation** (TSXV: NGC | OTCQB: NGPHF) with their Lac des Iles producing graphite mine in Quebec and the Okanjande graphite deposit/Okorusu processing plant in Namibia.

### **Some junior graphite miners**

There are several junior graphite miners but those with the more advanced stage projects are **NextSource Materials Inc.** (TSX: NEXT | OTCQB: NSRCF), **Talga Group Ltd.** (ASX: TLG), **Westwater Resources Inc.** (NYSE: WWR), **Nouveau Monde Graphite Inc.** (NYSE: NMG |, TSXV: NOU), **Triton Minerals Limited** (ASX: TON), (TSXV: LEM | OTCQB: LEMIF), [Lomiko Metals Inc.](#) (TSXV: LMR | OTCQB: LMRMF), and **Renascor Resources** (ASX: RNU).

### **Closing remarks**

The graphite miners have not yet taken off due to subdued graphite prices and ample supply in recent years; however, this looks set to start changing from 2023 onwards especially if the EV boom continues to do well. The flake graphite miners that can also move to make valued added active anode materials (spherical graphite) look set to capture even greater profits. There is also the synthetic graphite producers such as **Novonix** (ASX: NVX) (Nasdaq: NVX), the future graphite recycling companies such as [Elcora Advanced Materials Corp.](#) (TSXV: ERA | OTCQB: ECORF), and the graphene companies such as [Zentek Ltd.](#) (NASDAQ: ZTEK | TSXV: ZEN).... but that's for another discussion next time.